

CLAIMS

1. A reciprocating compressor for a refrigerator comprising:
 - a hermetic container having a suction pipe and a discharge pipe connected thereto;
 - a driving unit having a stator fixed inside the hermetic container and a mover disposed spaced apart from the stator and linearly and reciprocally moved by interaction with the stator when power is applied to the stator;
 - an HFC refrigerant sucked into the suction pipe, being hydrogenated carbon fluoride and not including chlorine;
 - a compression unit for compressing the HFC refrigerant upon receiving a reciprocal motional force generated from the driving unit;
 - an ester-based lubricant, a sort of synthetic fluid, filled at the lower portion of the hermetic container and having a high moisture absorption and a saturated water amount of 1500~2000 PPM; and
 - a lubrication unit for supplying the ester-based lubricant to each motional portions of the driving unit and the compression unit and making a lubricating operation.
2. The reciprocating compressor of claim 1, wherein the stator consists of an outer stator fixed at the hermetic container; an inner stator disposed with a certain air gap with an inner circumferential surface of the outer stator; and a winding coil wound at one of the outer stator and the inner stator, to which power

is applied from an external source, and

the mover consists of a magnet disposed between the outer stator and the inner stator and being linearly and reciprocally moved when power is applied to the winding coil; a magnet frame having magnets mounted thereon; and a piston
5 connected to the magnet frame and compressing a fluid while being linearly and reciprocally moved.

3. The reciprocating compressor of claim 1, wherein the compression unit comprises:

10 a piston connected to the mover and linearly and reciprocally moved;
a cylinder, into which the piston is slidably inserted, for forming a certain compression chamber;
a suction valve mounted at a refrigerant passage formed at the piston and preventing a backflow of the refrigerant after being introduced into the
15 compression chamber; and
a discharge valve mounted at a front side of the cylinder and performing an opening and closing operation on a compressed refrigerant.

4. The reciprocating compressor of claim 1, wherein the lubrication unit
20 comprises:

a lubricant pumping unit for pumping the ester-based lubricant filled as much as a certain amount at a lower portion of the hermetic container; and
a lubricant supply passage for supplying the ester-based lubricant pumped

by the lubricant pumping unit into a frictional portion between the piston and the cylinder.

5. The reciprocating compressor of claim 1, wherein the refrigerant has
5 a zero ODP (ozone depletion potential) and incombustible.

6. The reciprocating compressor of claim 1, wherein HFC134a with a purity of above 99.9%, a molecular formula of CF_3CFH_2 and a molecular weight of 102 is used as the refrigerant.

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7. The reciprocating compressor of claim 1, wherein the lubricant has a density of 0.93~0.99 g/cm₃ at a temperature of 15°C and a total acid number of below 0.01 mgKOH/g.

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8. The reciprocating compressor of claim 1, wherein the lubricant has a flash point of below 240°C and a kinematic viscosity of 10.0~22.5 mm²/s at a temperature of 40°C.

9. The reciprocating compressor of claim 1, wherein the lubricant
20 contains additives such as a stabilizer, an antioxidant and the like.